

REMARKS

The Office Action rejects Claims 1 and 12-13 as anticipated by a publication to Vincent (U.S. 2002\0142579). Claims 9-11 and 16 are further rejected as obvious over Vincent in combination with Roy (U.S. 6,180,976) and Yoon (U.S. 6,121,146).

The Office's basis for rejecting the present claims as anticipated in view of Vincent is as follows:

Vincent et al. (US 2002\0142579) teaches forming a polycarbosilane polymer (such as trimethylsilyl cyclopentadiene) on the surface of a substrate, see Abstract, and Table 3. Vincent et al. (US 200\0142579) teaches that the polycarbosilane polymer may be used for chemical mechanical polishing stopper ([0080]).

As to dependent claims 12 and 13, see [0081] and page 13, lines 1-2.

See paragraph no. 3 bridging pages 2 and 3 of the August 18, 2006 Office Action.

Applicants traverse the rejection because Vincent does not disclose or suggest the chemical mechanical planarization stopper film of the present claims; namely one that consists of a polycarbosilane polymer that consists of the structural units recited in the present claims.

Vincent unquestionably requires the presence of oxygen in the prior art low dielectric constant interlayer dielectric film (i.e., low k ILD film). For example, Vincent discloses the chemical formula of the prior art low k ILD film in paragraph [0031], reproduced below for convenience (bold added):

The low k ILD films can be deposited as either OSG ($\text{Si}_a\text{O}_b\text{C}_c\text{H}_d$) or F-OSG ($\text{Si}_a\text{O}_b\text{C}_c\text{H}_d\text{F}_e$) films (wherein the atomic % of $a+b+c+d+e=100\%$ and $a=10.35\%$, **$b=1-66\%$** , $c=1.35\%$, $d=0-60\%$, and $e=0.25\%$). An oxidant such as N_2O , O_2 , O_3 , or H_2O_2 may be used in the CVD reactor, but may not be required in all cases since many of the precursors already incorporate Si-O bonds. Novel porous ILD films may also be produced fusing these specific organosilicon precursors.

Vincent explicitly discloses that the prior art low k ILD films have one of two different formulae; $\text{Si}_a\text{O}_b\text{C}_c\text{H}_d$ or $\text{Si}_a\text{O}_b\text{C}_c\text{H}_d\text{F}_e$. Oxygen must be present in both embodiments of the Vincent low k ILD films because “b” is 1-66%.

In contrast to the low k ILD films of Vincent, the chemical mechanical planarization stopper film of the present claims excludes polymers that include oxygen. Both the chemical mechanical planarization stopper film and the polycarbosilane polymer of the present claims are described by the transitional phrase “consisting of”. Applicants submit that it is readily recognized that this transitional phrase represents a closed claim. Applicants draw the Office’s attention to M.P.E.P. §2111.03 which states, in part:

The transitional phrase “consisting of” excludes any element, step, or ingredient not specified in the claim. (Citations omitted).

Thus, Vincent cannot disclose or suggest the presently claimed invention because the low k ILD film of the prior art must include oxygen and such compositions are excluded from the polycarbosilane polymer of the present claims.

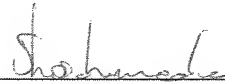
The Office points to Table 3 in support of the rejection. In particular the Office states that Table 3 discloses organosilane species that do not include oxygen. However, the films of Vincent may be formed from a mixture of the compounds of Table 3. In any case, the Vincent films must contain oxygen, which is excluded from the present claims.

Applicants submit that the rejection of the present claims as obvious and/or anticipated in view of prior art that discloses films that must contain materials other than the polycarbosilane polymer of the present claims is not supportable. Applicants request withdrawal of the rejection.

For the reasons stated above, Applicants submit that all now-pending claims are patentable in view of the prior art relied upon by the Office and request withdrawal of the rejections.

Respectfully submitted,

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